Small-scale farmers' assessment of constraints and benefits from getting involved in various organic certification schemes for the domestic market in Thailand

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Abstract

The organic certification schemes, which propose links between small-scale farmers and domestic markets in developing and emerging countries, are increasingly diverse. The study compared small-scale farmers' assessment of the constraints and benefits from getting involved in various organic certification schemes in Thailand. Three of these schemes were based on third-party certification and were managed by a public institute, an accredited non-governmental organisation, and a non-accredited one. The other schemes were participatory guarantee systems. One hundred farmers were interviewed. The farmers expressed a general similar assessment of the four types of schemes, in terms of the difficulties of obtaining certification. A key reason was that the scheme that had the most strict requirements was also the one providing the strongest support. The schemes mainly differed in terms of marketing opportunities. However, the organisations, which provided support to farmers wishing to obtain certification,

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generally recommended a particular scheme. Farmers had limited autonomy in initiating a certification process by themselves. Farmers' capacities may be built so that they become more autonomous in choosing the certification schemes that best suit their objectives.

Keywords: Marketing channels, Organic certification, Small-scale farms, Thailand

การประเมินของเกษตรกรรายย่อยต่อข้อจำกัดและประโยชน์จากการรับรองมาตรฐานเกษตรอินทรีย์ที่หลากหลาย สำหรับตลาดภายในประเทศไทย

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บทคัดย่อ

มีหน่วยงานที่รับรองมาตรฐานเกษตรอินทรีย์ที่มีอย่างหลากหลายเพิ่มมากขึ้น ที่เสนอการเชื่อมโยงระหว่างเกษตรกรรายย่อยและตลาดภายในประเทศในกลุ่มประเทศกำลังพัฒนางานศึกษาในครั้งนี้ได้เปรียบเทียบการประเมินของเกษตรกรรายย่อยต่อข้อจำกัดและประโยชน์จากการรับรองมาตรฐานเกษตรอินทรีย์ที่หลากหลายในไทย มาตรฐานที่ทำการศึกษานั้นเป็นมาตรฐานการตรวจรับรองประเภทบุคคลที่ 3 (third-party certification) จำนวน 3 มาตรฐาน ซึ่งเป็นการดำเนินงานโดยหน่วยงานรัฐ, หน่วยงานเอกชนที่ได้รับการรับรองระบบงาน (an accredited non-government) และหน่วยงานเอกชนที่ไม่ได้รับการรับรองระบบงาน (a non-accredited non-government) อีกหนึ่งมาตรฐานที่ทำการศึกษาคือ ระบบการรับรองแบบมีส่วนร่วม (Participatory Guarantee Systems) งานวิจัยได้ทำการสัมภาษณ์เกษตรกร จำนวน 100 ราย เกษตรกรได้แสดงการประเมินที่คล้ายคลึงกันต่อมาตรฐานเกษตรอินทรีย์ทั้ง 4 มาตรฐานในด้านของความยากต่อการได้รับรองมาตรฐาน โดยมีเหตุผลที่สำคัญคือมาตรฐานที่มีเกณฑ์การรับรองมาตรฐานที่เข้มงวดก็มักจะได้รับการสนับสนุนเป็นอย่างมากเช่นกัน มาตรฐานเกษตรอินทรีย์ส่วนใหญ่มีข้อแตกต่างกันในด้านโอกาสทางการตลาด อย่างไรก็ตาม

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องค์กรที่สนับสนุนเกษตรกรต่อการได้รับรองมาตรฐานเกษตรอินทรีย์นั้นโดยทั่วไปมักเป็นการแนะนำมาตรฐานแบบเฉพาะเจาะจง โดยที่เกษตรกรยังคงจำกัดในการเริ่มต้นกระบวนการมาตรฐานเกษตรอินทรีย์ด้วยตนเอง การเสริมสร้างศักยภาพของเกษตรกรอาจเป็นแนวทางหนึ่งที่ทำให้เกษตรกรสามารถเลือกมาตรฐานการรับรองที่สอดคล้องกับวัตถุประสงค์ของเกษตรกรได้ด้วยตนเอง

คำสำคัญ: ช่องทางการตลาด, มาตรฐานเกษตรอินทรีย์, เกษตรกรรายย่อย, ประเทศไทย

Introduction

The demand for organic products in developing and emerging countries has been increasing in recent years. Similarly, the number of organic certification schemes geared to the domestic market in these countries has also increased (Xie *et al*., 2011; Bhattarai *et al.,* 2013; Ríos Guayasamín *et al*., 2016; Faysse *et al*., 2017). There is a long-standing debate about the type of organic certification standard that is best suited to small-scale farmers for the domestic market in developing or emerging countries. This debate has been increasingly focused on third-party certification versus Participatory Guarantee Systems (PGS) over the last years (Fouilleux and Loconto, 2017). Third-party certification means that an independent body controls the conformity of farmers' practices with an organic standard. PGS are local quality assurance systems, based on the active participation of farmers and other stakeholders with regard to knowledge building and exchange. PGS also depend on social networks and trust (International Foundation for Organic Agriculture Movements, 2017).

Several studies (e.g., Thamaga-Chitja and Hendriks, 2008; Kaufmann and Vogl, 2018) suggest that third-party certification schemes are inadequate for small-scale farmers because of high certification fees and lengthy certification procedures. PGS have been thus promoted as an alternative approach to managing organic certification for small-scale farmers to sell to domestic markets (Zanasi *et al*., 2009; Nelson *et al*., 2010; Bara *et al*., 2017; Home *et al*., 2017). However, with few exceptions (e.g., Blanc and Kledal, 2012), no structured comparative assessments have been conducted on the various organic certification schemes that enable small-scale farmers to access the domestic markets in developing and emerging countries.

The diversity of certification schemes geared to the domestic market has expanded in particular in Thailand, thanks to an already 30-year experience in organic farming (Vandergeest, 2009). The number of organic farms increased from approximately 1,000 in 2002 to more than 13,000 in 2015. The area of land that is cultivated organically reached 45,600 ha in 2015 (Ruenglertpanyakul, 2016). Several organisations promote various standards for the organic certification of small-scale farms in Thailand for the domestic and export market. These schemes are operated by public organisations, Thai and foreign private for-profit actors, local non-governmental organisations or networks and PGS

(Ellis *et al*., 2006; Limnirankul and Gypmantasiri, 2012; Wyatt, 2010).

In Thailand and in other developing and emerging countries, the diversity of certification schemes calls for comparative assessments, from farmers' perspective, of what each of these certification schemes entails in terms of constraints and benefits. The question of which criteria should be chosen to undertake such comparisons has also be still little addressed.

The present study compares small-scale farmers' assessment of their involvement in four types of organic certification schemes geared to the domestic market in Thailand. Studied schemes are: 1) one managed by a government agency; 2) one managed by a certification organisation operating at national level; 3) one managed by an organisation which is not accredited and which operates at regional level; and 4) three PGS operated by a public foundation, a university and a sustainable agriculture network. All these certification organisations are non-profit and put forwards the goal of supporting small-scale farmers, but differ in terms of the certification requirements and processes, the support provided and the market channels that farmers can get access to once they obtained organic certification. The main objective of the study is to compare farmers' assessments of the difficulties they faced during the certification process and the benefits generated by certification.

The study area is located in Chiang Mai Province, in the North of Thailand. This province was chosen because some local actors have a long experience in organic farming. Initiatives to promote organic farming started in this province in 1993 (Pattanapant and Shivakoti, 2009). In particular, actors related to the Alternative Agriculture Network and the Institute for a Sustainable Agricultural Community (ISAC) defined a regional organic standard in the 1990s (Wyatt, 2010). Nowadays, many public organizations and non-governmental organizations, at national and local level, promote organic farming in this province and help farmers get certification using various standards.

This study compares organic certification schemes from farmers' perspective. Another important issue would be to compare these schemes from the perspective of consumers, in terms of reliability of certification (i.e., the frequency and types of controls along the value chains), prices, the possible coexistence of various organic standards in the same market places, etc. Such consumers' perspective is important as pesticides

were found in organic products on some domestic markets in Thailand (Wanwimolruk *et al.*, 2016). However, this falls outside the scope of the present study.

The article is organized as follows: the first section reviews previous studies that compared various organic standards in terms of the benefits that farmers derive from obtaining certification. Since there are few studies doing so for the domestic markets only, both export and domestic markets will be considered in this section. Then, the method and results are presented. The discussion argues that the key differences that emerged between the four certification schemes, from farmers' perspective, were only marginally related to the criteria usually used in previous studies, i.e., the difficulties to get certification and the prices at which farmers sell organic products.

Comparing farmers' involvement in organic certification schemes

Comparative assessments of certification schemes operating in the same rural areas have focused primarily on organic standards (and fair trade), which were set up for small-scale farmers in developing or emerging countries who produced for export to developed countries (e.g., Kolk, 2013; Riisgaard *et al*., 2009). Dorr (2011) compared fair trade, Global Gap and organic certification in Brazil, focusing on the requirements that farmers had to meet. In terms of benefits, studies generally use comparison criteria such as yield price, income, or household assets (Parvathi and Waibel, 2016). For instance, Ruben and Zuniga (2011) and Akoyi and Maertens (2017) found that both fair trade and organic standards lead to higher price compared to non-certified produce, but that organic certification leads to relatively lower yields compared to non-organic fair trade certification.

Studies focusing on the domestic market have mainly been engaged in the debate between PGS and third-party certification – usually promoting the former. These studies usually assess the impacts of PGS, in terms of farmers' capacity-building and empowerment, community development or food security (Kaufman and Vogl, 2018). However, these studies did not organize a structured comparison with third-party certification. One exception is Blanc and Kledal (2012), who conducted a comparative analysis in Brazil between small-scale farmers involved in a PGS and others delivering to two commercial organic suppliers. In the case they studied, only the PGS enabled farmers to remain in control of their development.

Given the increasing number of certifications schemes coexisting in the same areas in developing and developed countries, more and more farmers actually obtain certification from several schemes (Pierrot *et al*., 2011). Obtaining certification from different schemes may be difficult, e.g., complying with different requirements in terms of record keeping and pest management (Giovannucci *et al*., 2008; Blackmore *et al*., 2012). In general, the impact of multiple certifications on farmers' incomes was found to be positive for farmers with two fair trade certificates (Van Rijsbergen *et al*., 2016) and for those with both fair trade and organic certificates (Anteneh Woubie *et al*., 2015). However, Beuchelt and Zeller (2011) did not reveal any significant impact in terms of double certification on income per capita.

Methodology

Conceptual framework

We studied farmers who were involved in various organic certification schemes, by focusing on three different aspects (Figure 1). The first line of research considered the reasons why farmers decide to obtain organic certification, in general, and why they start the certification process with a specific scheme, in particular. The second line focused on the difficulties that farmers face when trying to obtain certification. We considered that these difficulties were related to: official requirements, the frequency of controls, the degree of flexibility at the beginning of the certification process (if farmers initially fall short of certain requirements), and the support provided to help farmers meet requirements. The third line considered the benefits that farmers derive from organic certification. These benefits are assumed to be related to the marketing opportunities linked to each standard and the farmers' assessments of the pros and cons of organic marketing channels.

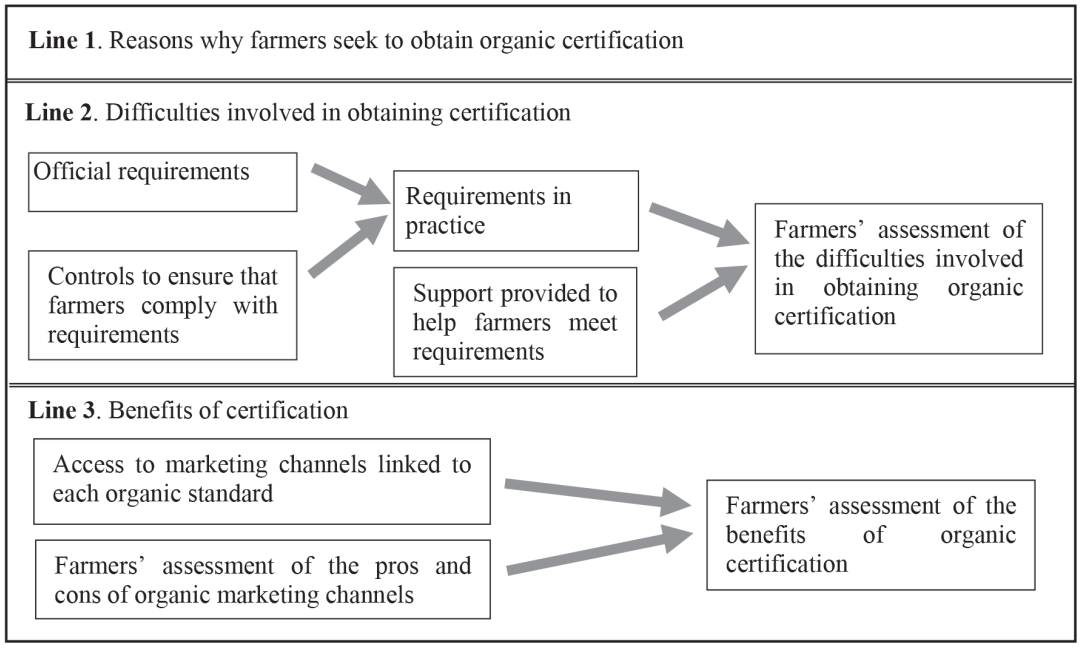

Figure 1. Conceptual framework

The organic standards studied

We analysed the organic standards set by: i) the Institute for Organic Crops (IOC), a public organisation; ii) the Organic Agriculture Certification Thailand (ACT), an accredited certification body at national level; iii) the Northern Organic Standard Association (NOSA), which manages a regional certification scheme with no official accreditation; and iv) various PGS operating in Chiang Mai Province. We refer to these standards using the name of the organisations that manage them.

The National Bureau for Commodity and Food Standards, the official accreditation body in Thailand, has accredited the IOC and the ACT. The Ministry of Agriculture and Cooperatives set up the IOC in 2002. It is the public organisation in charge of certifying organic vegetables (Ellis *et al*., 2006). In 2016, according to IOC data, the IOC had certified 502 ha of land that were farmed by small-scale farmers[†], i.e., 30.2% of the total area that

[†] Throughout the paper, we use the definition provided by the Office of Agricultural Economics of Thailand (2013), which considers that small-scale farms manage less than 2.4 ha. According to Thai agricultural census (National Statistical Office of Thailand, 2013), 23.2% of farms in Thailand farm less than 0.96 ha; 13.9% farm between 0.96 and 1.6 ha; 50.5% farm between 1.6 and 6.4 ha and 12.4% farm above 6.4 ha.

IOC certified as organic in Thailand. The official name of IOC standard is "organic Thailand". ACT is a non-profit certification organisation set up in 1995 by a network comprising non-governmental organisations, scholars, consumer organisations, media and organic retail shops (Vandergeest, 2009). ACT also obtained accreditation from the International Federation of Organic Agriculture Movements and the International Organic Accreditation Service. ACT is involved in the certification of vegetables, rice, aquaculture, livestock and beekeeping. Actors promoting this certificate support farmers to market on both domestic and export market. In 2016, according to ACT data, ACT had certified 1,744 ha of land under small-scale production, i.e., 18.9% of the total area certified by ACT as organic in Thailand.

NOSA is a certifying body that was set up in 1994 by a network involving small-scale organic farmers, consumers, scholars and non-governmental organisations in the Northern Region of Thailand. It certifies livestock, rice and vegetable production. Contrary to key actors promoting ACT, NOSA rejects the standardisation of organic certification at national level and rather considers that farmers and consumers should define together standards locally (Vandergeest, 2009). In the 2000s, NOSA wanted to be accredited by the National Bureau for Commodity and Food Standards. NOSA did not complete the process because it disagreed with the changes that the National Bureau asked in terms of certification requirements (Wyatt, 2010). In 2016, according to data from NOSA, 61 ha of organic crops produced by small-scale farmers were certified, i.e., 37.6% of the total area certified by NOSA as organic.

Finally, we studied three PGS operating in Chiang Mai Province. These PGS were organized by the Thai Organic Agriculture Foundation, Maejo University and the Thai PGS Organic Plus Network. The Thai Organic Agriculture Foundation was created in 2015. It was a Thai government initiative and has become the main organisation promoting PGS in Thailand. The foundation operates in Chiang Mai Province with the support of the Chiang Mai Organic Cooperative. In 2015, Maejo University set up a project that aimed to provide organic vegetables to restaurants on the campus. Finally, the Thai PGS Organic Plus Network was created in 2013 by organic retail shops, organic marketing cooperatives, an organic seed network, a sustainable agriculture network and a foundation promoting organic farming at a national level. The objective was to develop an affordable certification scheme for small-scale farmers. In each of these PGS schemes, the requirements for certification are defined by a committee, which involves organic farmer

groups, consumers and staff from organisations promoting PGS. The committee is also in charge of organizing on-farm inspections. These three PGS certify the production of vegetables, rice and livestock, but have not been accredited by the National Bureau for Commodity and Food Standards. According to data from the three PGS and to Athinuwat *et al*. (2016), the small-scale farmers that obtained certification from these schemes cultivated 1,025 ha of certified land in 2016. This area represents 89.6% of the total area farmed that obtained certification from these three PGS in 2016.

Organic certification can be delivered to individual farms or to groups of farms. In the case of group certification, group members share knowledge about issues related to certification and they organise some form of auto-control, involving visits to members' farms. Auto-control is also referred to as implementing an internal control system (Preißel and Reckling, 2010). Group certification is compulsory in the case of PGS and optional in the case of IOC and ACT. In the case of group certification, ACT and IOC only conduct controls on a sample of farms in the group. NOSA does not propose group certification. Table 1 presents a summary of key differences between the four studied types of organic certification schemes.

Several organisations are in charge of promoting each standard, i.e., they explain the requirements of the standard, help farmers find solutions to meet these requirements, and they may contribute to certification costs if they receive any funding (Table 2). In addition, they often help farmers market their products. In Chiang Mai Province, the Royal Project Foundation is one of the organisations that promote IOC and ACT. The foundation also helps farmers with marketing, packaging and processing (Vidyarthi, 2015). The Green Net Cooperative promotes ACT and also supports marketing for small-scale organic farmers (Kaufman and Mock, 2014). ISAC promotes the NOSA standard (Limnirankul and Gypmantasiri, 2012). Certifying bodies of PGS promote their own standards.

Table 1. Key characteristics of studied organic certification schemes

Organic certification scheme	IOC	ACT	NOSA	PGS
Certifying organisation	IOC	ACT	NOSA	Thai Organic Agriculture Foundation, Maejo University and the Thai PGS Organic Plus Network
Status of certifying organisation	Public	Non-profit private	Non-profit private	Non-profit private and public
Accreditation	Yes	Yes	No	No
Third-party certification	Yes	Yes	Yes	No
Key promoting organisations	Royal Project Foundation, offices of the Ministry of Agriculture and Cooperatives	GreenNet, Royal Project Foundation	ISAC	PGS Thai Organic Agriculture Foundation: Chiang Mai Organic Cooperative and Tapthai Organic Cooperative PGS Maejo University: Maejo University Thai PGS Organic Plus Network: Earth Net Foundation, Green Net Cooperative, Green Net SE company, Lemon Farm

For all standards studied, the main certification requirements were as follows: 1) the farm should not cultivate non-organic crops and, in particular, the seeds should not be genetically modified and should be produced organically; 2) the farm should be protected from contamination from neighbouring non-organic farms, with the establishment of a buffer zone; 3) farmers should avoid damaging the soil or polluting water (e.g., crop residues should not be burnt and livestock should be prevented from polluting water resources); 4) farmers should use organic fertilisers, rotate crops and allow volunteer plants to grow on their farm and they should not use poultry droppings from intensive production units; 5) organic techniques should be used for the prevention

and control of pests, diseases and weeds (e.g., bio-pesticides and wood vinegar); 6) farmers should keep farm records of input use and agricultural practices.

Data collection and analysis

Interviews took place in Chiang Mai Province in 2016. First, we interviewed staff members from the certifying organisations studied (one person from IOC, one from ACT, one from NOSA, and one from each of the three PGS). We asked them about the requirements of their certification scheme, the type of support provided and the types of farms certified.

Second, we interviewed 100 farmers who had a valid organic certificate at the time of the interview. For each of the four certification schemes studied (PGS were considered together), we identified 25 farmers. Initially, we assumed that there was a link between farmers' assessments of organic standards and their farms' characteristics. Therefore, we defined three small-scale organic farm types. The first, referred to as "home garden", includes farms that produce diverse crops on plots of less than 0.32 ha. The second, referred to as "diversified crops", covers farms that produce diverse crops on plots between 0.32 ha and 2.4 ha. The last group includes farms that are specialized in the production of one organic crop. The 100 farmers were selected by researchers based on lists of farmers provided by certifying organisations, from which it was possible to know the type of each farm and whether the farmer applied for individual or collective certification. For each standard, we chose farmers for interview to ensure that our sample reflected a similar distribution to that provided by the staff of certifying organisations, in terms of the three farm types as well as individual versus group certification (Table 2).

Table 2. Sampling farmers for interview

Type of farm	Homegarden	Diversified Crops	A single crop	Individual certification	Group certification	Total
IOC	5	20	0	8	17	25
ACT	3	17	5	1	24	25
NOSA	7	17	1	25	0	25
PGS	4	19	2	0	25	25
Total						**100**

We first asked interviewed farmers which organic standards they had obtained. Actually, many farmers had obtained various standards. We asked questions about their understanding of the requirements of the organic standards they had obtained, the support they could get to help them meet the certification requirements and the flexibility of the control teams when there was a problem meeting a given requirement. Second, farmers were asked to rank the difficulties to achieve the requirements between 1 (easy), 2 (some difficulties met), 3 (difficulties met) and 4 (very difficult to achieve). The requirements were grouped into the six above-mentioned categories: 1) zero production of non-organic crops; 2) protection from contamination from neighbouring farms; 3) protection of soil and water resources; 4) improvement of soil and local ecosystem; 5) prevention and control of pests, diseases and weeds using organic techniques; and 6) keeping farm records.

Third, farmers were asked about how they marketed products, and the pros and cons of each of the marketing channels they were using. Farmers with several certificates were asked to specify which standard they used for each market outlet. Fourth, they were asked to rank the benefits for every organic standard that they obtained, ranking them between 1 (unsatisfied), 2 (a bit satisfied), 3 (quite satisfied) and 4 (very satisfied). The benefits considered were greater access to organic marketing channels and higher prices. Each scheme enabled farmers to access different organic value chains. Thus, when farmers were asked to assess the economic benefits of certification, they actually considered the balance of prices that they obtained from the different chains.

Data analysis involved descriptive statistics of the difficulties that farmers mentioned (per requirement and per certification standard) and of farmers' assessment of benefits resulting from certification (per benefit and per certification standard). One-way ANOVA tests were made to identify possibly statistically significant differences between certification standards (in terms of farmers' average assessment of the difficulties and of the benefits) and between difficulties farmers faced to get certification (farmers' assessment of each difficulty being then averaged between the standards he or she knew about).

Results

On average, the farmers we interviewed farmed 0.93 ha (ranging from a minimum of 0.016 ha to a maximum of 2.4 ha). Among the 100 farmers, 92 farmers had some fields where multiple crops were grown together, such as vegetables, fruit trees and aromatic plants; 34 farmers had fields specifically dedicated to one crop (31 grew rice, 1 grew longan, 1 grew mango, and 1 grew sesame). Farms in the categories "home garden" and "diversified crops" mainly produced vegetables. The farms that only produced one organic crop predominantly grew rice.

Farmers' engagement with one or several organic certification schemes

During interviews, 44 of the 100 farmers that had obtained certification declared that they had multiple certifications. Therefore, of the farmers interviewed, 27 farmers had IOC certification, 38 had ACT certification, 43 had NOSA certification and 39 had PGS certification. All farmers that attempted to obtain organic certification stated that their aim was to increase their income via access to more marketing channels and higher prices. Six farmers added that they also wanted to have some decision-making power over the price of their goods. The latter sold their products on farm or at rotating markets in Chiang Mai City, which are organised in different places during the week. Farmers' groups jointly decide the prices at these markets. Five farmers who sold produce at the markets in Chiang Mai City stated that when they sold personally at the market, they could also explain their organic farming practices to consumers. They did so because they considered that consumers had little understanding of organic farming or distrusted organically certified products. Lastly, four farmers were interested in strengthening their organic agriculture networks and, therefore, were involved in PGS.

Farmers with multiple certification followed different pathways. For instance, 12 farmers obtained ACT certification after they obtained certification from IOC, NOSA, or a PGS, and 24 farmers obtained PGS certification after having obtained certification from NOSA. Three of the farmers who initially obtained NOSA certification later obtained certification from both IOC and PGS. In general, farmers obtained double or triple certification in order to access more market channels. Moreover, multiple certifications gave farmers more credibility when it came to convincing consumers that their products were genuinely organic.

However, farmers were highly dependent on the institutional environment for obtaining certification. Out of the 147 certifications that the 100 interviewed farmers had obtained altogether, only 11 were obtained based on farmers obtaining information independently, and the others were obtained based on an initiative taken by a supporting organisation. This was in particular the case for most farmers obtaining a second or a third certification. For instance, the 24 farmers that had obtained NOSA certification and then later obtained PGS certification, did so thanks to the existing links between the organisations, which promote and certify the different certification schemes.

Certification requirements

Table 3 presents the support provided by the organisations promoting each standard (according to farmers) and the frequency of controls to verify farmers' compliance with requirements. It also shows the degree of flexibility demonstrated by staff from certifying organisations when farmers do not initially fully comply (according to both farmers and staff from the certifying bodies). In this table, low flexibility indicates that all official requirements are compulsory for obtaining certification. Medium flexibility means that, in a situation where a farmer does not initially meet certain requirements, the certifying body grants certification on condition that the farmer follows their recommendations for full compliance before the next visit. Such a flexibility did not concern use of pesticides but, for instance, could concern the buffer zone if this zone was not initially sufficiently large.

In addition, farmers were generally obliged to accept a conversion period, during which they had to prove that they did not use any chemicals. The duration of the conversion period was officially 12 months for IOC and PGS and 24 months for ACT (and 36 months in the case of export to the European Union). In practice, if farmers produced enough evidence to show that they complied with requirements, the conversation period imposed on farmers was shorter than the official duration. A conversion period was not imposed on farmers who applied for NOSA.

Table 3. Support from organisations promoting certification and controls conducted by certifying organisations

	IOC	ACT	NOSA	PGS
Approximate number of farm visits per year to help farmers meet requirements	5	12	1	1
Minimum number of controls per year	1	1	1	6
Initial flexibility when a farmer fails to meet certain requirements	Low	Low	Medium	Medium

Farmers who applied individually for ACT certification had to pay a fee of 17,000 baht/year[‡]. On the farms studied, this fee was reduced to 2,700 baht/farm/year in the case of group certification. Farmers that requested IOC certification did not pay certification fees. Since it was founded, NOSA had helped pay for 90% of certification costs, thanks to funding from government agencies and international donors. Therefore, farmers actually paid 1,000 baht/year. The certification fee for the PGS organised by the Thai Organic Agriculture Foundation was 500 baht/year for small-scale farmers. No certification fees were charged for the PGS organised by Maejo University or for the Thai PGS Organic Plus Network.

The difficulties of obtaining certification

Table 4 presents farmers' assessment of the difficulties involved in meeting the requirements for each organic standard. Only a minority of farmers reported that they had faced problems meeting certification requirements. The most frequent problems included the use of organic techniques to prevent and control weeds, pests and diseases, and keeping detailed farm records. A one-way ANOVA test (homogeneity of variance satisfied) showed that keeping farm records and controlling pests, diseases and weeds using organic techniques were, from farmers' point of view, both significantly more difficult to achieve than the zero production of non-organic crops and the protection of soil and water resources. Another one-way ANOVA test (homogeneity of variance satisfied) did not find significant difference between standards in terms of overall difficulties to meet the six requirements. Indeed, all four certification schemes had similar official requirements. Moreover, Table 3 shows that

[‡] In December 2016, 1 USD = 35.9 baht.

the two least flexible standards (ACT and IOC) also provided more frequent on-farm support to help farmers comply with requirements.

Table 4. Farmers' assessment of the difficulties of meeting the requirements for organic standards

Requirements	IOC N=27	ACT N=38	NOSA N=43	PGS N=39	Farmers' average assessment
Zero production of non-organic crops	1.04 *(0.19)*	1.24 *(0.49)*	1.28 *(0.50)*	1.26 *(0.49)*	**1.20**
Protection from contamination from neighbouring farms	1.26 *(0.44)*	1.53 *(0.56)*	1.44 *(0.63)*	1.33 *(0.58)*	**1.39**
Protection of soil and water resources	1.04 *(0.19)*	1.16 *(0.37)*	1.26 *(0.62)*	1.23 *(0.58)*	**1.15**
Improvement of soil and local ecosystem	1.44 *(0.58)*	1.47 *(0.56)*	1.37 *(0.49)*	1.33 *(0.48)*	**1.37**
Prevention and control of pests, diseases and weeds using organic techniques	1.89 *(0.75)*	1.79 *(0.78)*	1.67 *(0.78)*	1.67 *(0.77)*	**1.75**
Keeping farm records	1.85 *(0.66)*	1.58 *(0.50)*	1.51 *(0.59)*	1.56 *(0.55)*	**1.59**
Average	**1.42**	**1.46**	**1.42**	**1.40**	

Note: assessment based on a scale ranging from 1 (very easy) to 4 (difficult). Mean values are shown with standard deviations in parentheses.

Marketing and benefits from certification

Table 5 shows that the market channels to which farmers sold their produce were related to their farm type. In general, farmers of the "diversified crops" group sold via all marketing channels. By contrast, farmers who produced small quantities in home gardens mainly sold to rotating markets and farmers who produced only one organic crop sold almost exclusively to cooperatives, which required larger quantities.

Table 5 also shows the organic standards that farmers used to gain access to marketing channels. Standards from accredited certification schemes (ACT and IOC) were used to sell in diverse marketing channels. Farmers with NOSA and PGS certification

mainly sold at the rotating markets. Although neither scheme was officially accredited, some of NOSA and PGS certified farmers sold their products to a cooperative or to organic shops. This was possible because the personal relationships, which existed between supporting organisations and actors in the chains, meant that buyers trusted the organic standard.

Two main groups of marketing channels can be identified based on farmers' assessment of the pros and cons of each marketing channel (Table 6). The first group includes rotating markets and on-farm sales to consumers and middlemen. In this group, farmers only sold small quantities of products and, therefore, were obliged to offer a variety of agricultural produce. Farmers perceived the risk of not selling all their products to be limited given that only a small quantity of products could be sold in this group of marketing channels. According to farmers, a positive element of these marketing channels is that they were paid on the spot. The second group includes: i) cooperatives (which sold produce directly to consumers in their own shops, to rice companies, organic retail outlets and a limited amount was destined for export markets); ii) organic retail shops in Chiang Mai City and Bangkok; iii) a community enterprise, which supported farmers to grow organic longan and sold their products to supermarkets; iv) the Thai Royal Project Foundation, which sold products in their own shops at a national level and for export; v) supermarkets. Farmers appreciated that they could sell larger quantities of produce in these marketing channels. However, farmers generally complained that when they sold to this group of market outlets, payment was slow.

Table 5. Farmers' access to organic markets as a function of the certification standard obtained and farm type

	Farm type			Certification standards			
	Home garden	Diversified crops	Only one crop	IOC	ACT	NOSA	PGS
Number of farmers	19	73	8	27	38	43	39
Rotating markets	14	43	1	6	9	39	19
On-farm sales	1	5	0	1	3	0	2
Cooperatives	3	12	8	0	17	6	0
Organic shop	0	13	0	2	1	4	6
Community enterprise	0	1	0	0	1	0	0
Royal Project Foundation	6	21	0	17	10	0	0
Supermarkets	0	3	0	2	1	1	0

Table 6. The pros and cons of marketing channels according to farmers

Marketing channel	Pros	Cons
Rotating market	Support from various organizations; direct contact with consumers; immediate payment; low farm investment; participation in price setting	Selling small quantities of products; time consuming; cost for renting a space at the market
On-farm sales	Little damage to vegetables; no transportation cost; immediate payment; autonomy in price setting	Selling small quantities of products
Cooperatives, organic retail shops, community enterprises	Selling large quantities of products	Delayed payment
Thai Royal Project Foundation	Support for marketing; selling large quantities of products	Prices of organic products are not much higher than products certified as complying with Good Agricultural Practices; delayed payment
Supermarkets	Selling large quantities of products	Delayed payment; high farm investment

Table 5 shows that the certification standards that farmers had obtained enabled a relatively good correspondence between the type of farm produce (small quantities of various products versus large quantities of only one product) and the demands of market channels. However, this did not stem from farmers' initiative since, as said above, farmers had little role in the choice of organic standard. Rather, organisations promoting PGS preferentially involved farmers having "home gardens" and organisations promoting ACT were interested in supporting farmers producing only one crop.

Table 7 presents farmers' assessment of the benefits generated by certification. Farmers had generally positive assessments of the benefits in terms of accessing more market channels and in terms of getting higher prices. Farmers ranked NOSA as the certification body enabling connection to the largest number of market channels. Indeed, even though Table 5 shows that ACT was the certificate enabling access to the widest variety of marketing channels, farmers could use NOSA and PGS to sell to several rotating organic markets (interviewed farmers sold altogether to 26 rotating markets in Chiang Mai Province). Eventually, each certificate enabled farmers to get access on average to 1.22 marketing channel for IOC, 1.75 for ACT, 1.97 for NOSA and 1.68 for PGS.

Farmers did not generally consider that prices were a significant positive or negative element for a specific marketing channel (see Table 6), and thus they generally did not make a difference between organic certificates in this regard. The only exception was that farmers complained that the prices offered by the Royal Project Foundation were lower than expected. Since the Royal Project Foundation was the main marketing channel for IOC certified farmers, the latter expressed greater dissatisfaction about prices compared to farmers from other schemes. However, these differences between standards in terms of market access and of prices should be considered with caution due to the limited size of the samples (t-tests showed significant difference at $p<0.15$ only).

Table 7. Farmers' assessment of the benefits resulting from certification

Benefits	IOC N=27	ACT N=38	NOSA N=43	PGS N=39	Average
Wide access to organic market channels	3.33 *(0.55)*	3.29 *(0.51)*	3.51 *(0.59)*	3.33 *(0.96)*	**3.37**
Higher price	2.81 *(0.88)*	3.05 *(0.61)*	3.07 *(0.86)*	2.97 *(0.96)*	**2.98**

Note: assessment based on a scale ranging from 1 (unsatisfied) to 4 (very satisfied). Mean values are shown with standard deviations in parentheses.

Discussion

Certification schemes mainly differing in terms of the marketing channels that they can help access

Studied organic certification schemes can be typified into two groups based on the way they interacted with farmers. The first group, which includes ACT and IOC, aimed at supporting farmers in achieving requirements defined at national level. Support was provided to help farmers prepare for certification but there was limited flexibility at the time of controlling whether farmers achieved requirements. The second group, which includes NOSA and PGS, aimed at embarking farmers in a process towards improving practices rather than trying to achieve all requirements for organic certification at once.

Despite these differences, farmers did not consider that there were major differences in the level of difficulty to achieve certification between these two groups. Similarly, they did not consider third-party certification (IOC, ACT and NOSA) was more difficult to obtain than PGS. These results differ from previous studies (e.g., Hill, 2016; Nelson *et al*., 2010 and 2016; Home *et al*., 2017), which suggested that small-scale farmers can achieve PGS more easily than third-party certification, in order to sell organic products on domestic markets of developing and emerging countries.

Apart from these unexpected similarities between diverse certification schemes, the results show key differences in the type of market channels that farmers could access once having obtained an organic standard. Previous studies comparing the benefits that farmers obtained from getting organic or fair trade standard mainly focused on prices

and farmers' income. The present study shows that farmers underlined the large differences in pros and cons of the marketing channels that could be accessed thanks to some organic certificate, but prices generally did not come out as a major element in such assessment.

Towards harmonization?

Based on this analysis, is there a case, from farmers' perspective, for promoting harmonisation between the four types of certification? As proposed by Pekdemir (2018) and Reinecke *et al.*, (2012), there would be an interest to evolve towards a similar certification standard for third-party certification schemes (IOC, ACT and NOSA) because their requirements are broadly similar. A harmonized standard could be based on requirements defined at national level and the standard could be accredited by the National Bureau for Commodity and Food Standards. Each scheme may keep on having its own specificities, e.g. in terms of providing support and linking farmers to markets.

However, the PGS offers a specific approach, in terms of: i) accompanying farmers in progressively improving practices; ii) being adapted to local specificities; iii) allowing for low cost certification for selling on local markets. As pointed out by Lemeilleur and Allaire (2016), the PGS standard appears as complementary to those used by third-party certification. This complementarity is all the more important as this study showed the diversity of market-orientation among small-scale organic farmers.

Conclusion

There is an on-going debate about which certification scheme (based on third-party control or PGS) suits best the interests of small-scale farmers. The small-scale farmers interviewed in Chiang Mai Province expressed broadly similar views with regard to the difficulties faced to obtain four organic certification standards and the benefits derived from getting these standards. Certification schemes differed mainly in terms of the type of the support provided to help farmers obtaining standard, in the costs of certification and in the type of marketing channels that farmers could access to sell their produce. This diversity makes it possible for farmers to obtain the certification that best suits their farm's characteristics and their objectives. There was generally a good correspondence between farm types and market channels. However, farmers' limited autonomy in getting additional organic certification may limit their capacity to evolve in the future and to access other market channels.

Three policy recommendations can be made from this study. First, farmers' capacities may be built so that they become more autonomous in choosing the certification schemes that best suit their objectives. They should be informed about the diversity of existing certification standards, their requirements, and their benefits, in particular in terms of the market channels that can be accessed with each standard. For instance, specific organisations which are not related to one specific standard, could build farmers' capacities in this regard. Then, once farmers have identified which standard suits best their farm characteristics and their farm projects, these organisations could link farmers to the organisations promoting this standard. Second, one way to help farmers deal with pests, diseases and weeds using organic techniques and to help them keep farm records, is to promote networking between farmers, especially among those that opt for individual certification. Third, harmonizing some or all third-party standards may help farmers access a wider range of markets based on obtaining a single organic certificate.

The present study compared four types of organic certification schemes from farmers' perspective. This could be completed by three analyses. The first analysis could focus on the implementation of standards: the way controls are made in practice, the actual quality of organic products on the markets, and to what extent in particular the flexibility that some of studied schemes shows to farmers in case they initially do not meet all requirements impacts on the quality of organic products. The second one could widen the criteria for comparison of standards, e.g., assessing empowerment processes over the long term. The third analysis could compare the same four types of schemes, but this time from the perspective of consumers: to what extent they understand the differences between standards and the trust they have in each of these standards. These analyses will contribute to build a comprehensive assessment of the different pathways that can be followed to successfully link small-scale farmers and consumers of developing and emerging countries.

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